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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,473	08/23/2006	Yoshiyuki Wada	MAT-8888US	9698

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EXAMINER	
NGUYEN, DONGHAI D	
ART UNIT	PAPER NUMBER
3729	
MAIL DATE	DELIVERY MODE
09/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,473	WADA ET AL.	
	Examiner	Art Unit	
	DONGHAI D. NGUYEN	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/23/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"the reinforcing electrode" (claim 3 and 6, line 2) lacks antecedent basis.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,402,013 to Abe et al in view of US Patent 5,726,861 to Ostrem and vice versa.

Regarding claims 1 and 3, Abe et al disclose an electronic component mounting method for mounting the electronic component on a substrate by soldering a connection terminal of the electronic component to an electrode provided on the substrate (see Col. 4, lines 36-38), comprising: an adhesive supplying step of supplying a thermosetting adhesive mixing solder particles to the substrate (see Col. 4, lines 20-24); a component mounting step of mounting the electronic component (chip) on the substrate after the adhesive supplying step (Col. 4. line 24);

and a heating step of heating the substrate after the component mounting step (Col. 4, line 25), wherein the adhesive supplying step is characterized by supplying the adhesive to the electrode (see Col. 4, lines 23-24), the component mounting step is characterized by fitting the connection terminal to the adhesive supplied on the electrode (see Col. 4, line 24), and the heating step is characterized by forming a solder junction by bonding the connection terminal and electrode by fusing the solder particles in the adhesive supplied to the electrode, and also forming an adhesion reinforced part for fixing the electronic component to the substrate by heating and curing the adhesive by sealing the inside of the adhesive with solder part (see Col. 4, lines 31-38). Abe et al do not disclose supplying the adhesive to an adhesion reinforcing portion determined outside of the electrode on the substrate for covering the reinforcing electrode provided in a portion separated from the electrodes on the substrate and fitting the electronic component to the adhesive supplied in the adhesion reinforcing portion. Ostrem teaches the step of supplying the adhesive (113) to an adhesion reinforcing portion (111) determined outside of the electrode (105) on the substrate (115) for covering the reinforcing electrode provided in a portion separated from the electrodes on the substrate (see Fig . 1) and fitting the electronic component (117) to the adhesive supplied in the adhesion reinforcing portion for maximizing the fatigue life of the surface mount component soldered connection and providing a compliant interconnect that can withstand repeated thermal excursions (see Col. 4, lines 9-14). Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to modify the invention of Abe et al by supplied the adhesive in the adhesion reinforcing portion as taught by Ostrem for maximizing the fatigue life of the surface mount component soldered connection and providing a compliant interconnect that can withstand repeated thermal excursions.

Regarding claims 4 and 6, Abe et al disclose an electronic component mounting structure for mounting an electronic component having a connection terminal on a substrate with an electrode by a thermosetting adhesive mixing solder particles, comprising: a soldering unit of bonding the electrode and the connection terminal formed by fusing and solidifying of the solder particles in the adhesive supplied in the electrode (see Col. 4, lines 20-38). Abe et al do not disclose an adhesion reinforcing unit that covers the reinforcing electrode provided in a portion separated from the electrodes on the substrate. Ostrem teaches the adhesion reinforcing unit (113) being formed in the adhesion reinforcing portion separated from the electrode portion (105) on the substrate (115) that covers the reinforcing electrode provided in a portion separated from the electrodes on the substrate (see Fig. 1) for maximizing the fatigue life of the surface mount component soldered connection and providing a compliant interconnect that can withstand repeated thermal excursions (see Col. 4, lines 9-14). Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to modify the invention of Abe et al by utilized the adhesion reinforcing unit as taught by Ostrem for maximizing the fatigue life of the surface mount component soldered connection and providing a compliant interconnect that can withstand repeated thermal excursions.

In alternative, Ostrem disclose every limitation of claims 1, 3-4 and 6, except for the adhesive having a thermosetting adhesive mixing with solder particles. Abe et al teach the adhesive comprises mixture of thermosetting adhesive and solder particles (Col. 4, lines20-23) for increasing the joining strength of electronic component to the board without require cleaning after soldering (see Col. 1, lines 58-67). Therefore, it would have been obvious to one having

ordinary skill in the art the time the invention was made to modify the invention of Ostrem by utilized the adhesion as taught by Abe et al for increasing the joining strength of electronic component to the board without require cleaning after soldering, underfilling or resin molding.

5. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe/Ostrem or Ostrem/Abe et al as applied above, and further in view of US Patent 6,521,997 to Huang et al.

Abe/Ostrem or Ostrem/Abe et al as applied and relied above do not disclose the adhesion reinforcing portion partly overlaps with the plural electrodes, and the portion separated from the electrodes is set on a concave resist film. Huang et al teach the adhesion (14 and 17) partly overlaps with the plural electrodes (12), and the portion separated from the electrodes is set on a concave resist film (11), and the solder part is held in the concave portion (see Figs. 3 and 4) for preventing the occurrence of short circuit between electrical component and solder electrodes (see Col. 2, lines 21-22). Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to further modify the invention of Abe/Ostrem or Ostrem/Abe et al by utilized the configuration of electrodes, resist film and adhesive as taught by Huang et al for preventing the occurrence of short circuit between electrical component and solder electrodes.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art references cited for their teachings of mounting components to the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONGHAI D. NGUYEN whose telephone number is (571)272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
September 15, 2008

/Donghai D. Nguyen/
Primary Examiner, Art Unit 3729